CLAIMS LISTING:

1. (Previously Presented) A range gearbox for motor vehicles adapted to be connected to the output side of a basic gearbox, the range gearbox comprising:

a planetary gear (7), enclosed in a housing (3), with a sun wheel (9) arranged on an input shaft (5) and engaged with planet wheels (10), said planet wheels being carried by a planet wheel carrier (12) connected to an output shaft (8) and engageable with an axially displaceable ring gear (14);

said ring gear (14) being selectively lockable, via a coupling means, in a first coupling position in which the ring gear (14) is non-rotatably connected to the housing in order to establish gearing between the input shaft and the output shaft, and in a second coupling position in which the ring gear (14) is non-rotatably connected to one of the input shaft and the output shaft in order to establish direct drive therebetween; and

interacting tooth faces of the planetary gear (7) are angled in such a manner in relation to the longitudinal axis of the input shaft (5) and the output shaft (8) that an axial force arises on the ring gear (14) from gear speed changes during synchronizing, and this axial force assists movement of the ring gear in the same direction as an external shifting force during shifting to a low range configuration of the range gearbox.

2. (Original) The range gearbox as recited in claim 1, wherein the ring gear (14) is connected non-rotatably to a coupling sleeve (18) that is arranged concentrically with the output shaft and serves as a ring gear carrier.

3. (Original) The range gearbox as recited in claim 2, wherein the coupling sleeve (18) engages in the first coupling position with a first coupling ring (21) which is fixed in relation to the planet wheel carrier (12) and in the second coupling position with a second coupling ring (25) which is fixed relative to the housing (3).

4. (Original) The range gearbox as recited in claim 3, wherein the coupling rings (21, 25) are designed with mutually facing synchronizing cones (23, 26) which each interact with their respective synchronizing ring (24, 27) engaging with the coupling sleeve (18).

5. (Previously Presented) The range gearbox as recited in claim 4, wherein the synchronizing rings (24, 27) are pressable against the respective synchronizing cone (23, 26) by means of an annular spring (34) which is arranged between the cones and, in one coupling position, is accommodated in a first internal annular groove (32) in the coupling sleeve (18) and, when the coupling sleeve is displaced into the other coupling position, is displaced over to a second internal groove (33) in the sleeve by the synchronizing ring which is active in the second position.

6. (Original) The range gearbox as recited in claim 2, wherein the coupling sleeve (18) has an annular flange (17) with external splines (16) which engage with internal splines (15) on the ring gear (14), and in that the coupling sleeve is axially fixed relative to the ring gear by means of a locking ring (19) accommodated in a groove in the ring gear.

7. (Original) The range gearbox as recited in claim 6, wherein the extension of the teeth in the ring gear (14) is utilized for splines for rotational locking of the ring gear with the coupling sleeve.

8. (Previously Presented) The range gearbox as recited in claim 1, wherein normal rotation direction of the sun wheel (9) is clockwise, seen in the direction from a basic gearbox interacting with the range gearbox, the tooth faces of the sun wheel being directed to the right when the sun wheel is observed along its axis of rotation.

9. (Currently Amended) A range gearbox of the planetary-type for a motor vehicle adapted to assist shifting between at least two operating positions, said range gearbox comprising:

a planetary gear arrangement in which a sun gear and planet carrier are anchored against axial movement and a ring gear is axially shiftable between at least two positions for achieving at least two corresponding gear ratios of the range gearbox;

the sun gear, the planet carrier and the ring gear interacting with each other via inter-engaging helical gear teeth; and

wherein the inter-engaging helical gear teeth of the planetary gear arrangement are angled in such a manner in relation to a longitudinal axis of an input shaft and an output shaft that an axial force arises on the ring gear from gear speed changes during synchronizing, and this axial force assists movement of the ring gear in the same direction as an external shifting force during shifting to a low range configuration of the range gearbox ~~the inter-engaging helical gear teeth configured to generate a substantially axially directed shift-assisting force during gear change~~.

10. (Previously Presented) A range gearbox of the planetary-type for a motor vehicle adapted to assist shifting between at least two operating positions, said range gearbox comprising:

a planetary gear arrangement comprising three components including a sun gear, a planet carrier carrying a plurality of planet gears, and a ring gear; of said three components, at least one is axially shiftable between different axial positions for achieving corresponding different gear ratios of the range gearbox;

said planetary gear arrangement enclosed in a housing and said sun wheel arranged on an input shaft and engaged with said planet gears, said planet gears being carried by said planet carrier connected to an output shaft and engageable with said axially displaceable ring gear;

said ring gear being selectively lockable, via a coupling means, in a first coupling position in which said ring gear is non-rotatably connected to said housing in order to establish gearing between the input shaft and the output shaft, and in a second coupling position in which the ring gear is non-rotatably connected to one of the input shaft and the output shaft in order to establish direct drive therebetween;

interacting tooth faces of the planetary gear arrangement being angled in such a manner in relation to the longitudinal axis of the input shaft and the output shaft that an axial force arises on the ring gear from gear speed changes during synchronizing, and this force, at least on shifting to a low range position, tends to move the ring gear in the same direction as an external shifting force; and

the sun gear, the planet carrier and the ring gear interacting with each other via an interactive means for generating a shift-assisting force during gear change.

11. (Original) The range gearbox as recited in claim 10, further comprising:

said interactive means for generating a shift-assisting force during gear change directing said shift-assisting force in a substantially axial direction.

12. (Original) The range gearbox as recited in claim 10, further comprising:

said sun gear and said planet carrier being anchored against axial movement and said ring gear being axially shiftable between at least two positions for achieving at least two corresponding gear ratios of the range gearbox.

13. (Original) The range gearbox as recited in claim 10, further comprising:

said different axial positions corresponding at least to a high range position and a low range position, and said shift-assisting force being generated at least between gear changes from the high range position to the low range position of the range gearbox.

14. (Cancelled)

15. (Original) The range gearbox as recited in claim 10, wherein the ring gear is non-rotatably connected to a coupling sleeve that is arranged concentrically with the output shaft and serves as a ring gear carrier.

16. (Original) The range gearbox as recited in claim 15, wherein the coupling sleeve engages in the first coupling position with a first coupling ring that is fixed in relation to the planet gear carrier and in the second coupling position with a second coupling ring that is fixed relative to the housing.

17. (Original) The range gearbox as recited in claim 16, wherein the coupling rings are configured with mutually facing synchronizing cones that each interact with their respective synchronizing ring engaging with the coupling sleeve.

18. (Original) The range gearbox as recited in claim 17, wherein the synchronizing rings are pressable against the respective synchronizing cone by means of an annular spring that is arranged between the cones and, in one coupling position, is accommodated in a first internal annular groove in the coupling sleeve and, when the coupling sleeve is displaced into the other coupling position, is displaced over to a second internal groove in the sleeve by the synchronizing ring which is active in the second position.

19. (Original) The range gearbox as recited in claim 15, wherein the coupling sleeve has an annular flange with external splines that engage with internal splines on the ring gear, and the coupling sleeve is axially fixed relative to the ring gear by means of a locking ring accommodated in a groove in the ring gear.

20. (Original) The range gearbox as recited in claim 19, wherein the extension of the teeth in the ring gear is utilized for splines for rotational locking of the ring gear with the coupling sleeve.

21. (Currently Amended) A method for providing gear shift-assistance in a range gearbox of the planetary-type for a motor vehicle between at least two operating configurations of the range gearbox, said method comprising:

providing a planetary gear arrangement comprising three components including a sun gear, a planet carrier carrying a plurality of planet gears, and a ring gear; at least one of said three components being axially shiftable between different axial positions for achieving different gear ratios of the range gearbox; and at least two of said three components interacting via helically configured gear teeth, wherein helically configured gear teeth are angled in such a manner in relation to a longitudinal axis of an input shaft and an output shaft that an axial force arises on the ring gear from gear speed changes during synchronizing; and

assisting movement of the ring gear in the same direction as an external shifting force during shifting to a low range configuration utilizing the axial force ~~assisting a gear shift between different axial positions of the axially shiftable component utilizing an axial force generated by interaction of the at least two of said three components that are interacting via the helically configured gear teeth thereby facilitating achievement of a shift between the at least two operating configurations of the range gearbox~~.